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208 Bath Road Slough, Berkshire SL1 3WE (GB).
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- (75) Inventors/Applicants (for US only): PAGE, Mark [GB/GB]; 34 The Swallows, Welwyn Garden City, Hertfordshire AL1 1BY (GB). LI, Jing-Li [GB/GB]; 166 Ravenscroft Road, Beckenham, Kent BR3 4TW (GB). PUMPENS, Paul [LV/LV]; Biomedical Research and Study Centre, University of Latvia, Ratsupites Str. 1, LV-1067 (LV). BORISOVA, Galina [LV/LV]; Biomedical Research and Study Centre, University of Latvia, Ratsupites Str.1, Riga, Latvia 1067 (LV).
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(54) Title: MODIFICATION OF HEPATITIS B CORE ANTIGEN

(57) Abstract: A protein is provided comprising hepatitis B core antigen (HBcAg) wherein one or more of the four arginine repeats has been deleted, said protein comprising the C-terminal cysteine of HBcAg. The deleted region may be replaced by an epitope from a protein other than HBcAg, in which case the HBcAg acts as a carrier to present the epitope to the immune system. The chimeric protein is useful in prophylactic and therapeutic vaccination of a host, for example against hepatitis B virus.

INTERNATIONAL SEARCH REPORT

Inventional Application No
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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C12N15/51 C07K14/02 A61K39/29 A61P31/20		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, BIOSIS, WPI Data, PAJ, MEDLINE, CHEM ABS Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HATTON T ET AL: "RNA AND DNA-BINDING ACTIVITIES IN HEPATITIS B VIRUS CAPSID PROTEIN A MODEL FOR THEIR ROLES IN VIRAL REPLICATION" JOURNAL OF VIROLOGY, vol. 66, no. 9, 1992, pages 5232-5241, XP001041852 ISSN: 0022-538X page 5232, left-hand column, paragraph 2 -right-hand column, paragraph 1 page 5232, right-hand column, paragraph 3 -page 5233, left-hand column, paragraph 2 page 5234; figure 1 page 5234, left-hand column, paragraph 1 -right-hand column, paragraph 1 page 5235, right-hand column, paragraph 3 page 5238; figure 7 --- -/--	1,3-5, 13,17-22
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *Z* document member of the same patent family		
Date of the actual completion of the international search 7 December 2001		Date of mailing of the international search report 21/12/2001
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Sitch, W

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 26385 A (POWDERJECT VACCINES INC) 11 May 2000 (2000-05-11) page 2, paragraph 1 page 26 -page 28; example 1 page 28 -page 30; example 2 ---	2
A	SCHOEDEL F ET AL: "HYBRID HEPATITIS B VIRUS CORE ANTIGEN AS A VACCINE CARRIER MOIETY: I. PRESENTATION OF FOREIGN EPITOPES" JOURNAL OF BIOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 44, no. 1/3, January 1996 (1996-01), pages 91-96, XP000891474 ISSN: 0168-1656 page 91 abstract ---	
A	EP 0 421 635 A (WELLCOME FOUND) 10 April 1991 (1991-04-10) cited in the application page 2, line 35 - line 46 ---	
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	<p>DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 1992 ZHOU S ET AL: "CYS RESIDUES OF THE HEPATITIS B VIRUS CAPSID PROTEIN ARE NOT ESSENTIAL FOR THE ASSEMBLY OF VIRAL CORE PARTICLES BUT CAN INFLUENCE THEIR STABILITY" Database accession no. PREV199294115400 XP002185073 abstract & JOURNAL OF VIROLOGY, vol. 66, no. 9, 1992, pages 5393-5398, ISSN: 0022-538X</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

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